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CONVENTION NOTICE
King Edward Hotel
June 25, 26, 27, 28, 1928
Ha, Ha! Skinney Wada say
Convention today
Down Toronto way.

MONTHLY REVIEW

Published by the

American Electroplaters Society

Publication and Editorial Office

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VOL. XV MAY, 1928 No. 4

EDITORIAL

Well, here we are back again at the end of another fiscal year and our society one year older and more firmly established in the history of the world, and each member of our society again entitled to the consideration that is given to all good citizens by the governments of the countries in which they live.

During the year just passed our research fellowship at the Bureau of Standards at Washington, D. C., under directorship of Dr. Wm. Blum, has made progress in their investigations and are broadening scope of investigation on nickel and chrominum and will continue to do so, as much as the subscription list and amounts of moneys collected will permit; their efforts on our behalf will be entirely controlled by the generosity of the subscribers so let's get behind this fellowship 100 per cent and stick like glue until we overcome all the mysteries that now surround our industry, and by so doing repay these faithful members and fellows who give much of their time and education to help us all.

CONVENTION FORECASTS FOR APRIL

"The world is mine," said Monte Cristo in Dumas' story of that name. And he stood triumphantly on a rock, half submerged by the thundering surf and shook his fists at the awful prison from which the raging waters had carried him. The world is yours, too. All the exquisite grandeur of the Niagara peninsula, eastern or western Ontario; all the exotic beauty of Canada's flower garden; all the languid, perfume laden atmosphere of blossom time; the quaint loveliness of rural homes; the moaning of the lakes; the freshening feel of cool air on your face; the roar of the wind in high places; the vigorous adventure of open spaces—all the way, pleasure, beauty, comedy on good roads, NO GLASS OR TACKS—if you motor to Toronto in June.

Weather probabilities for June: It will make no difference how the weather is weathering, or whether the weather is not weathering, we will have to weather the weather, whether or not. Try saying that fast while you pray for good weather in June.

James Whitcomb Riley said: "It hain't no use to grumble and complain, It's jest as cheap and easy to rejoice. When God sorts out the weather and sends rain, Why, rain's my choice."

We are going to advise you where to eat and where to park your car. Then you can do as you darn please.

Some think the Spring seed catalogues constitute the apex in literature, but wait until you see the Toronto Convention Souvenir Program.

When your wife loses you in Toronto we advise her to remember that she will probably find you when she don't want you, by looking where you wouldn't be if she did want you.

Chromium plating and cadmium plating will be dealt with by practical men. In fact, the educational program to date indicates a real feast of valuable information for the plater and his employer.

All indoor features will be held under one roof. Exhibits of supplies and equipment will be representative of the most progressive firms on the North American Continent.

You can reach Toronto by one of four different comfortable means of conveyance. Rail or bus from Buffalo, New York. Rail, bus or boat from Niagara Falls. Rail or boat from points

East. Rail direct from points West, or by boat from Detroit, Toledo or Cleveland. Motorists will find good roads, service stations, hot-dogs, speed cops, road hogs, damn fools and all the other features usually encountered on a motor trip through an attractive area—except detours.

Chicago branch had two carloads of delegates and members rounded up for the convention before the first of March. Other branches should do similarly. If you can't get a carload, fill a Ford. Bring your mother-in-law. Bring that hard-boiled GUY who has always refused to become a member of your branch. Tell him you want to show him some real, live, honest-to-goodness Canadian Indians. We'll eat him alive.

Mr. E. G. Lovering of Detroit will sing his latest melody entitled "Where the Red, Red Noses Blow." Operators of chromium baths are respectfully requested to listen in.

Plan your arrival in Toronto for Sunday, June 24th. Registration begins at 8:00 o'clock Monday morning. Credentials should be turned in early.

The opening session is scheduled to be called to order by Chairman John Acheson, the silver-toned orator of Toronto branch, at 10:00 a. m. Then our own dear, genial, smiling John Walker, president of Toronto branch, will tell you how to enjoy yourself while in our midst, and believe me, John has the right idea, so be sure and see John.

After a long ride in either coach, boat, bus or motor you will want to stretch a leg. The new Union R. R. Station, the boat docks, the bus terminals, and the best garages are all within easy walking distance of the convention headquarters, the King Edward Hotel, King Street, East.

WE INVITE YOU TO COME. BRING ONE OR A CARLOAD. THIS IS LEAP YEAR—LEAP THE BORDER AND YOU'LL LEAP WITH JOY.

Use a jumping Ford, boat, rail or bus, but come on over and meet with us.

W. S. BARROWS,
Secretary, Convention Committee.

REPORT OF W. P. BARROWS, RESEARCH ASSOCIATE OF THE AMERICAN ELECTROPLATERS' SOCIETY, APRIL, 1928

From April 23-28, inclusive, visits were made to six plants in connection with plant tests on crystal or stain spotting. On April 26, a short address on the "Crystal Spotting of Sulphide Finishes" was given at the meeting of the Advisory Committee on the Standardization of Builders' Hardware held in New York City. The convention of the Electrochemical Society and the Educational Session of the American Electroplaters' Society both held at Bridgeport, Conn., were attended during April 26-27-28.

During April the report on the Crystal Spotting of Sulphide Finishes was mimeographed and sent to all subscribers to the Research Fund, and officers and branches of the American Electroplaters' Society.

The study of the stain spotting of brass, bronze and iron castings was continued, employing castings of a type known to be porous. Three lines of attack were followed. First, an attempt was made to convert alkaline salts in the pores of the metals to carbonates by exposing the castings before lacquering to an atmosphere of carbon dioxide for a considerable period. As carbonates are less hygroscopic than alkaline cyanides or hydroxides, it was hoped that if all alkaline salts could be converted to carbonates, the decreasing tendency to absorb moisture would lead to a decrease in stain spotting. Due to the difficulty of reaching the salts in the pores or to the hydrolysis of the carbonates formed, no decrease in the amount of stain spotting was observed.

The possibility of filling the pores of the metal previous to cleaning or plating was investigated. The substance employed as "filler" must be one which will not react with the lacquer or itself cause stain spotting and which may be easily removed from the surface. The "fillers" tried were glycerine, and lacquer which was baked and air dried. Apparently neither resisted the effects of the subsequent cleaning or plating solutions sufficiently to cause any marked improvement.

The neutralization of alkaline salts in the pores of a metal is frequently attempted in plant operations. Efforts were made to neutralize alkaline salts by introducing acids into the pores previous to cleaning and plating. Grey iron castings were boiled for

ten minutes in 0.25 M, 25 g/L chromic acid previous to the cleaning and brass plating operations. Evidently the acid retained was not sufficient to neutralize the excess of alkali or was removed during the cleaning or plating operations, for no decrease in the stain spotting was noted.

Efforts to neutralize alkali salts in the pores subsequent to the cleaning and plating operations were made by employing dilute acids. Brass plated grey iron castings were boiled in 5 per cent acetic acid for 5 minutes followed by a 10-minute boiling in pure water, (until tarnish began to form on plate). No decreases in the amount of stain spotting could be detected.

Brass plated iron castings were immersed in a dilute solution of chromic acid of such strength that the brass plate was not attacked. (0.025 M or 2.5 g/L.) One and one-half to two and one-half hours' immersion followed by rinsing in water failed to decrease the amount of stain spotting. Shorter periods of immersion in a stronger acid (0.25 M or 25 g/L) also failed in this respect.

Although the above-mentioned methods of attack have not shown much promise to date, work along these lines will be continued until all possibilities have been exhausted.

A beginning was made on the study of the effect of casting conditions on the porosity of the cast metal.

Respectfully submitted,

W. P. Barrows, Research Associate.

BRASS PLATING

By Ray Goodsell
President Milwaukee Branch

It is the purpose of the writer to try and bring out some of the fundamental principles of Brass Plating that may be helpful to some that have troubles with their brass solution, either in the making or maintenance of the same.

Preparation of Solution

To prepare a brass solution proceed as follows:

First measure your tank to ascertain how many gallons are required to fill to the solution level.

Multiply number of gallons by number of ounces of copper per

gallon and divide by sixteen which will give you the number of pounds of copper required.

Example—Suppose your tank holds (700) gallons and your solution is to be made up of 4 oz. of copper cyanide per gallon, multiply 700x4 which gives you 2,800 oz., divide by 16 which gives you 175 lbs. copper cyanide. Six ounces of sodium cyanide is required to dissolve 4 oz. of copper cyanide, multiply 6x700, divide by 16 gives you 262½ lbs. of sodium cyanide.

Add the cyanide and copper to the tank and dissolve in enough water to keep the temperature below 140°.

If allowed to get too hot, insoluble salts will form which will cause a cloudy solution, which settles at the bottom as mud.

When all the copper is taken up, fill tank to solution level with water and add 1 oz. of sodium carbonate to each gallon or 43 lbs. total.

If a yellow brass is required the preparations of zinc to copper should be 30 parts zinc and 70 parts copper.

The metallic contents of copper cyanide is approximately 70 per cent and the metallic contents of zinc is 54 per cent, therefore it would require 1.7 oz. of zinc cyanide to give you 70 per cent copper and 30 per cent zinc or 74 lbs. 6 oz. zinc cyanide to 700 gallons.

Zinc cyanide should be dissolved in separate container using just enough cyanide to clear the solution.

Be careful not to overheat.

When thoroughly dissolved, add slowly to copper solution with constant stirring.

A piece of work should be hung on the cathode rod and as deposit turns to bronze add bisulphite of soda which has been previously neutralized with sodium carbonate.

It is advisable to add a small quantity of ammonia to solution before all of the zinc is added so as to be sure that you are not adding too much zinc, as ammonia brings up the zinc.

Your solution is now ready for use although it is sometimes advisable to work the solution for a few hours before using on production.

A brass solution may be properly balanced in regard to metal and yet produce an unsatisfactory deposit. It is therefore necessary to give some of the diseases and remedies of a brass solution:

"Dull deposits come from lack of cyanide, too high current or needs brightening.

"Make additions accordingly.

"Arsenic can be used as brightener if care is used in adding to solution. ½ oz. to 100 gallons will produce a bright deposit."

Blistered deposits are caused from too much cyanide, too much current, solution too dense or improper cleaning.

Too much free cyanide will also cause deposit to run to a gray color.

Too much zinc causes a gray deposit, also zinc red.

Zinc red has been a problem with platers, leading them to believe that the solution needs zinc.

It appears upon the surface of the article as a pinkish red that looks like a copper deposit and as the current is increased it increases in redness.

It does not always mean that the zinc content is too high and can be remedied by the use of bisulphite of soda ½ oz. to the gallon which brings up the copper and changes the deposit to yellow brass.

A small amount of ammonia will sometimes do the trick.

It is the opinion of the writer that zinc red is caused by too much soda as well as too much zinc.

The remedy for zinc red is—add bisulphite of soda and increase copper content, but first of all be sure it is zinc red.

A few weeks ago the writer had trouble with brass plating and felt sure he had a bad case of zinc red, as the articles plated came out red on the edges and a pink color on the surface. Taking 1 gallon of solution and heating to 160° F. a nice yellow brass was obtained.

One oz. of copper was added to another gallon but with no results.

One oz. of zinc was added to another gallon and a nice yellow brass was obtained.

After a careful analysis the solution stood—8 oz. copper, 1.2 oz. of zinc.

One-half of the brass solution was added to a copper bath and the tank filled with water and 1 oz. per gallon of zinc, ½ oz. bisulphite of soda and a small quantity of ammonia was added and the solution plated yellow brass.

Brass solution should be kept under chemical control at all times so that the proportions of copper and zinc can be kept accurate.

Temperature is another important factor, as a cold solution will run to the zinc side and a warm solution to the yellow or red side if solution is too hot.

The writer suggests 80° F. and has good results at that temperature providing the metal content is right.

Anodes

There are different opinions on the use of proper anodes.

Some platers use zinc and copper, while others use yellow brass, or, all copper.

Anodes can be obtained from supply houses, with either high or low zinc content, but it is the opinion of the writer that the anodes should have the same metal content as the solution you are using.

Discussion on Brass Solution

Mr. Goodsell: Our brass solution sometime ago, which we run on a fill for about 300 days out of the year, got into some kind of a spasm whereby it plated what I supposed was zinc red. There appeared on the edges a red formation of copper, or, at least it appeared like copper, and naturally they came to me to ask what was the trouble. It looked to me like zinc red. So I took a gallon of it and we tried some of it out. Without additions of copper we didn't get any results, but by adding 1 oz. of zinc we obtained a very good colour of brass. By adding one oz. of zinc to a good brass solution the solution came up very nice and plated nice brass. But I thought that was strange because after adding another gallon of that solution we found that the higher the heat the better the brass, until we got it up to 160° F. trying to plate brass. Naturally any plater would think that it needed zinc. So we sent out a sample of the solution and had it analyzed and there were 8 oz. copper and 1.2 oz. zinc in the solution. Why did it plate brass at that temperature?

Mr. Servis: What was the cyanide content?

Mr. Goodsell: I did not have that analyzed.

Mr. Hazucha: Would it be possible that the colour of that brass solution which you thought was zinc red was due to the ammonia in the solution rather than to the zinc?

Mr. G.: We don't use very much ammonia.

Mr. Hazucha: Well, it don't take much. By the addition of your zinc you have overcome the amount of ammonia you had in it. It would also seem to me that by heating your solution to 160

degrees or higher your ammonia would evaporate and you should at least obtain some appearance of bronze. You know that even ammonium chloride or the excess of soda will give you such a condition as you have explained.

Mr. G.: That is true of a cold solution around 80 or 100 degrees, but when you get to the boiling point with no addition of ammonia that is the thing that I can't understand.

Dr. Watts: I'll make an attempt to explain this. If you take a brass solution which is pretty low in free cyanide you can obtain almost any colour you want by just varying the current density. At low current density you will get a red that seems to be pure copper. Then by running your current density up higher you can get zinc. That is brought about because with the small amount of free cyanide present there is a tendency to deposit copper in preference to zinc and at low current density there is plenty of copper at your cathode to be deposited and deposits no zinc. If you raise your current density you will get more zinc down, so you get your yellow brass. Suppose you raise the current density to the point where you are getting yellow brass. Should you warm that solution it may come back red again. It has the same effect as stirring. You will still get the red. That is what I would have expected from your solution. But you get just the opposite. Therefore it occurs to me that the effect of the heat was really the same as stirring with a mechanical stirrer. In that case you would have probably gotten yellow brass instead of red. That red was probably almost copper. You have a tremendous quantity of copper and almost no zinc in it. And then you were using a current density such, that there was not enough zinc at your cathode to supply a yellow brass anyhow. By that you were taking out all the zinc that arrived and was coming out with your copper. Now by heating, you increase the rate of circulation to increase the amount of zinc at your cathode and so got some zinc along with your copper. Then the temperature of course can have another effect in altering the tendency to plate out copper and zinc. But the only thing I could see was the effect of mechanical stirring. It lessens the deposit of a solution, the diffusion is more rapid.

Mr. Proctor: The most remarkable part of Goodsell's statement is that they made analysis of their brass solution and had 8 oz. of copper and only 1.2 oz. of zinc. But you must remember that they had that solution up to 160 and still got a brass. Now it is

evident that the zinc in some manner didn't come over, of course. When adding ammonia it would come over, and there is a question of how long it would continue to come over until he put in the zinc. If we would use less ammonia and use rather an amount of caustic soda we would find that we would keep our anodes cleaner and free from zinc. I think that if Mr. Goodsell had made additions of caustic potash they would have found that the zinc would soon have come out with the use of caustic soda.

MORE PERFECT METAL DEPOSITS

Dr. Oliver P. Watts
University of Wisconsin

Whether electroplating be done for protection or for ornament, it is desirable that the metal coating be perfect, free from holes through which moisture may get at the underlying metal and corrode or tarnish it. Then, too, adhesion must be sufficient to prevent separation of the coating under whatever service may reasonably be expected from the plated article. Adhesion of the deposit is largely a matter of the finish of the metal surface, and the perfection of cleaning this, and will not be discussed further.

Except when the thickness is utterly inadequate, the failure of electroplating occurs in tiny spots, not over extended areas. The points of failure may be either spots not covered by the metal deposit, or thin places in the plate which soon become worn through or corroded in service. In a study of the relation between thickness of deposit on steel and the frequency of pin holes, made twelve years ago, it was found that in general the thicker the deposit, the fewer the holes, and the longer the period of exposure required to produce rust. As a result of these tests it was recommended that metal deposits over steel be made thicker than was the commercial practice at that time. But deposits of copper or nickel heavy enough to protect steel out of doors must be so thick as to be impractical, and we are still accepting nickel-plated steel which rusts on long exposure.

Could these thin spots or "pin holes" be eliminated, electroplating would furnish almost indefinite protection to steel in ordinary usage. There is no problem in plating more important than this, and if I can be instrumental in starting a campaign for better metal deposits by the prevention of these thin spots or pin holes in electro-plate, I shall feel that I have performed a real and lasting service to the plating industry.

The final solution of this important problem will doubtless require extended laboratory investigation; but in the meantime platers may do much to improve metal deposits, even though perfect electroplate is not yet attainable. Madsen claims to produce perfect nickelplate, but never having tested or even seen any samples, I am unable to confirm or deny this claim. More perfect metal deposits can be secured by giving special attention to the solution and to the surface on which the plate is deposited.

The first thing for you folks to do is to get everybody who is working on plating to have this in mind and make observations on the effect of finishes in his plating conditions which may lead to less of these pin holes in electroplating. As to the causes of these pin holes I can only guess. I shall try to point out some of those which I think are probably the cause of them. There may be other things which I don't know anything about.

One thing which should certainly receive attention is the solution. Undoubtedly a great many of these pin holes come about from solid particles suspended in the solution which get on the face of the article being plated and make the thin spot very live on the face. It would be fine if we could remove suspended particles entirely from the plating solution. It is customary to leave a settling space in the bottom of the plating tank, and that disposes of a large amount of the sediment in the tank. With the high-speed production we have now-a-days, however, that is going to stir up a solution. And in many cases no doubt the settling space is not adequate and you have a great deal of that slime stirred up in your solution settling on your articles and producing bad pin holes on your plate. Continuous and rapid filtration is being used by some platers. That is certainly a step in the right direction. In two (2) installations that I have seen, in neither was the filtration rapid enough to keep the solution even approximately free from solid particles, although the filtration was doubtless a help toward better deposits. Of course sediment must be taken care of at a very reasonable rate. So many companies now regularly test their plated products for imperfect plating that it should be comparatively easy to learn whether or not more rapid and efficient filtration lessens the number of pinholes and imperfections.

I think, also, clearer solutions is one thing to aim at. I don't think we will ever attain an absolutely clear solution. But I think

you men right here are the ones to tell what can be done in that way. Of course it can be tested in the laboratory, but to find out how much sediment you can get rid of practically without too much cost is something that will have to be settled in the plating room. And I hope that you men who take to filtering your solutions will observe the effect upon your plating—to what extent it makes an improvement on the pinholes in your plate. Now-a-days the big companies require that plated articles should be subjected to acid or some other corrosive material to find out how that plate is going to stand up. So it will be comparatively easy to compare the results of this plate through the result of filtration with the result without it, and in this way we will get at the true facts. And you have a chance at your meetings here to bring in the results and discuss them. Ten and fifteen men bringing in their results and exchanging their ideas will get ahead much faster than one or two men working by themselves. So I think it is highly important that you platers make such observations and believe it will result in great improvement.

I believe that there is little use in producing a solution perfectly clear from sediment without at the same time looking at another source of pinholes and imperfections: that is the surface of the metal upon which you are depositing. I have seen samples of metal that are being plated that are absolutely unfit for plating. The results were calculated to discredit all electro-plating in the eyes of the public. I had some samples of trunk wear sent to me some years ago to see what was the matter because they were having rust spots all over. For one thing they weren't putting on very much brass and for another thing the steel was absolutely unfit to plate in the condition in which they were plating. Examination showed that the surface of many pieces were deeply pitted from the removal of very heavy scale which had been rolled into the steel during manufacture. To make a bad matter worse, the ball burnishing of the steel before plating had rolled the edges of the deeper pits over to form caverns which there was no possibility of completely plating. The spots of bare steel in these formed voltaic cells with the brass plate surrounding them, and produced rusting with unusual rapidity. A sample of stainless steel from a well-known steel company was fully as badly pitted by the rolling of bits of scale into the steel. These were exceptionally bad cases, but even the pits in ordinary sheet steel may prove too deep and irregular for a poor-throwing solution to cover. I men-

tion that as an example of what platers are sometimes asked to do. I think the best thing in that case is to tell the party supplying the steel that there is no possibility of doing the work satisfactorily. If plated, the result will discredit electro-plating.

In most cases, of course, you polish your steel surface more or less before plating, and it might be supposed that this would destroy any effect of pits in the original steel; but unless the polishing operations cut down to the level of the bottom of the deepest pits, there is still a likelihood that a poor-throwing solution, such as nickel, may fail to give a good deposit in the depressions. It is hardly to be expected that you could cover up those pits so that the plating would stand up without rusting.

Is there not a possibility that sometimes even in the finishing with emery that the scratches or grooves formed with the emery are too much to expect nickel to put a water-tight covering over those things?

I have been looking at nickel before and after plating with a binocular microscope. I use that because it is a wonderful improvement over the ordinary microscope and with the ordinary microscope you simply see down into the crevice and see that there is a whole down there, and that is all. But with this binocular microscope you can see the whole thing. Some of the big companies may have such a binocular microscope as a part of the equipment in some other part of the plant, and if you could examine your metal once in a while it would be a revelation to you to see the surface you have to plate and the result of the plating also. Of course it isn't necessary to have such a binocular microscope. It is a wonderful instrument, but even with a high-powered magnifier you can tell a great deal about the condition of metal surfaces. If you are not using that in your work I advise each one of you to purchase for a dollar or so one of these magnifiers and examine the metal before and after plating. It will be an education to you and will lead to greater improvement in the results of your plating. You will be able to tell some of the powers higher up that the metal is not fit to plate or that the finishing operations are not so good as you can make them and you can alter such operations so that you are producing a surface where there is more than a 50-50 chance of covering up the metal that you are trying to cover.

There is one topic that I wish to touch upon before leaving this subject, and that is the metal of zinc. Both the researches of the

men responsible for the development of the electrolytic recovery of zinc, and the experience of the operators of the process show that very minute traces of certain metals in the zinc solution have extremely injurious effects upon the throwing power of the solution, the efficiency of deposition and the quality of the deposit, and that minute impurities in the deposited zinc greatly lessen its durability. It follows that the protection afforded by zinc plating may be much enhanced by the deposition of a purer zinc than is usually obtained in electroplating. This can be secured by starting with a pure solution and using only anodes of the highest quality.

I might say it took 25 to 30 years of experimenting before men got so that they could cover metals electrolytically. It has resulted in a 150-ton plant in Great Falls, Montana, and a lot of smaller plants elsewhere. They found that the reason men hadn't succeeded before was that the zinc solutions were not pure enough. Impurity cuts down the current efficiency and greatly lessens the throwing power and also affects the deposit unfavorably. They also found beyond any dispute that the purity of a deposit of zinc is an enormous factor in its durability, and that is the point that I want to emphasize more than any other. There is an enormous difference in the rate of corrosion of the high purity zinc and the ordinary zinc that we see. Several years ago I bought a zinc solution highly recommended and it did plate pretty well, but I found iron rust settled out of it until it seemed there wasn't anything else but iron rust. That solution had too much iron in it.

Two things to be remembered in connection with zinc are:

1. Keep your solution pure that you may get good throwing power and a high current efficiency, and

2. Your anodes should also be pure or you will defeat the object.

I believe the efficiency of electro-galvanizing can be enormously increased by getting pure zinc deposits, not 99% nor 99.9%, but 99.999%, and it will last four or five times as long as the 99% will last. There is no metal solution in which purity counts nearly so much in the nature of the deposit as in zinc.

This brief summary of some of the commonest failures of electroplating should serve to call attention to the remedies for the failures—properly filtered solutions, pure anodes, perfectly finished metal for receiving the deposit. With attention given to these three requisites, the quality of electro-plate should be greatly improved.

DR. E. F. SMITH, FORMER U. OF P. PROVOST, DIES

World-Famed Chemist and Educator Succumbs to Pneumonia in 72nd Year

A long and brilliant career, during which the world had heaped its honors upon him, ended shortly after 8 o'clock, May 3, at the

DR. EDGAR FAHS SMITH

University Hospital, when, with his wife, Mrs. Margie A. Gruel Smith, and a nephew, Gibson Smith, of York, at his bedside, Dr. Edgar Fahs Smith, provost of the University of Pennsylvania from 1911 to 1920, died after having been ill only a short while with pneumonia.

Nearly forty years of his life had been devoted to the University of Pennsylvania. During that time he had risen to the pinnacle of fame as educator and scientist. He was recognized internationally as a chemist of great note. Honors from Governments, universities, institutions and associations had been accorded him without stint.

As an educator he was best known to countless Philadelphians, who had grown accustomed to hearing him called "Pop Smith," a name by which he was known to unnumbered students to whom he had endeared himself by his fine manner, his patience and his personality.

Native Pennsylvanian

He was a native Pennsylvanian and, with few exceptions, did most of his great work in and for his State in its institutions. He was born May 23, 1856, at York, where his ancestors had settled several generations before.

In 1872 he entered the junior class of Pennsylvania College, at Gettysburg, and was graduated from there with the degree of Bachelor of Science in 1874. While a student there he directed his greatest attentions to chemistry and minerology.

It was by a curious chance that this young man, whose father had dreamed of a business career for him, came to the attention of Dr. S. P. Sadtler, professor of chemistry at the college. Dr. Sadtler saw the workings of the mind of "young Smith," and urged him to go to Germany and delve deeper into chemistry. Dr. Smith accepted that advice, and entered the University of Goettingen, where he studied chemistry for two years under Woehler and Huebner and minerology under von Waltershausen.

In 1876 he received his doctor's degree and returned to this country where, in the fall, he became assistant in analytical chemistry to Professor F. A. Genth, of the Towne Scientific School at the University of Pennsylvania. He held that position until 1881, and then went to Muhlenberg College, at Allentown, as the Asa Packer professor of chemistry. Two years later, in 1883, he went to Wittenberg College, Springfield, Ohio, as professor of chemistry.

Then, in 1888, he returned to begin his long career at the University of Pennsylvania. He first occupied the chair of analytical chemistry, which Dr. Genth had vacated. In 1892, Dr. Sadtler, who had provided Dr. Smith with the original inspiration to

specialize in his studes, resigned while head of the department of organic and industrial chemistry.

The Department of Chemistry then was completely reorganized, and Dr. Smith selected as its head. In 1908, upon resignation of Dr. George S. Fullerton as vice provost, Dr. Smith was chosen to fill the vacancy. He retained his professorship. Then, in 1911, when Dr. Charles Custis Harrison resigned as provost, Dr. Smith was elevated to that position, and became the thirteenth Provost of the University of Pennsylvania.

Regime Marked by Progress

During his regime as Provost the University made steady progress. In 1912 the college was divided into three departments, the College, the Towne and the Wharton Schools. In the same year the School of Dentistry was merged with the Thomas W. Evans Museum and Institute Society. In 1913 the extension schools were established under Dr. Smith's guidance. The next year brought the School of Education. In 1916 came the merger of the Medico-Chirurgical College and Hospital with the University and, in 1917, the addition of a course in military science.

The Philadelphia Polyclinic and College for Graduates in Medicine was merged with the University in 1918, and the following year saw the opening of the University's great Graduate School of Medicine which, from the start, has attracted world-wide attention. During 1920, his final year as Provost, the Laboratory of Hygiene and Public Health, the School of Fine Arts and the University Press were created.

The honorary degree of Doctor of Laws was first conferred upon Dr. Smith in 1904 by the University of Wisconsin. In 1906, the University of Pennsylvania similarly honored him, and later he received the honorary degrees from many other colleges and universities in this country and abroad, including Pennsylvania College, Franklin and Marshall College, Rutgers University, University of Pittsburgh, University of North Carolina, Princeton University, Wittenberg College, Brown University, Allegheny College, Temple University, Muhlenberg College, University of Dublin, Yale University, Swarthmore College and Queens College, Canada.

In addition to the honorary degree of Doctor of Laws which the University of Pennsylvania conferred upon Dr. Smith, it also honored him by conferring upon him the degree of Doctor of

Medicine in June, 1920, when the University's commencement exercises were made the occasion of a stirring tribute paid to Dr. Smith by students, faculty and friends upon his retirement as Provost.

Served Public Interests

Although continuously engaged in research work, teaching and administrative work and writing, Dr. Smith found time to take an active interest in the affairs of many organizations and frequently was called upon in various capacities to serve the public interests.

In 1893, Dr. Smith was appointed a member of the Jury of Awards at the Chicago Exposition, and was a member of the United States Assay Commission in 1895 and from 1901 to 1905. He was appointed adviser in chemistry to the Carnegie Institute in 1902 and was trustee of the Carnegie Foundation from 1914 to 1920.

From 1911 to 1922 he was President of the Wistar Institute, Philadelphia, and in 1915 was a member of the Electoral College from Pennsylvania; in 1919 he was on the Committee for Public Safety and also on the Commission for the revision of the Constitution of Pennsylvania; from 1911 to 1920 he was a member of the College and University Council; from 1920 to 1922 a member of the State Council of Education; in 1915 and 1918, a research associate to the Carnegie Institute, and in 1921 was appointed by President Harding to the Board of Technical Advisers for the Disarmament Conference.

Honored by Franklin Institute

Dr. Smith also was a member of the National Academy of Sciences; President of the American Philosophical Society from 1902 to 1906; President of the American Chemical Society in 1898, 1921 and 1922; Vice-President of the American Association for the Advancement of Science in 1898; member of the Society of the Chemical Industry, and of the Philadelphia School of Pharmacy and Science; an honorary member of the American Electrochemical Society; the Societie de Chimie Industrielle, in France, and the Chemical, Mining and Metallurgy Society of South Africa; and a member of the University and Union League Clubs in Philadelphia and the Chemists Club in New York City.

In 1914 Dr. Smith was awarded the Elliott Cresson Medal by the Franklin Institute, and in 1922 he was the recipient of the Chandler medal awarded by Columbia University. He was made

an officer of the Legion of Honor by France in 1923, and in 1926 he received the Priestley Medal from the American Chemical Society.

The Priestley Medal is bestowed every three years upon a chemist for outstanding achievement in the science and its award confers upon the recipient one of the highest honors which can be given to a scientist.

Statue Erected

Both during his term as Provost and later as Emeritus Professor of Chemistry, Dr. Smith was frequently the recipient of tributes paid him by students and alumni, probably the most outstanding of these being the erection of a statue of the former Provost. The statue, which was the gift of John C. Bell, University Trustee, was sculptured by Dr. R. Tait McKenzie, Director of the University's Department of Physical Education, and stands near the Harrison Chemical Laboratory on Thirty-fourth street between Walnut and Spruce streets. It was unveiled on Alumni Day, June 12, 1926.

Dr. Smith was prominent in Masonic circles, having been a Thirty-third Degree Mason, a Knight Templar and a member of the Shrine. He was married and lived at the Avondale, Thirty-ninth and Locust streets. His wife, who was Margie A. Gruel, and a nephew, Gibson Smith, of York, Pa., survive him.

Dr. Josiah H. Penniman, Provost of the University, issued the following statement after he had learned of the death of Dr. Smith:

"In the passing of Dr. Edgar Fahs Smith the University loses one of the greatest scientists of America; a teacher whose influence was an inspiration and a benediction to every student who entered his classes; an administrator of unusual abilities; a beloved friend of all who knew him.

"Forty years of closest personal friendship and university association make the loss to me, personally, an irreparable one of which I cannot attempt to speak adequately in the shadow of a great grief."

PHILADELPHIA BRANCH

The regular monthly meeting of Philadelphia Branch was held May 4th, with President Gehling in the chair.

Research committee progress report of spotting out was read and appreciated.

The speaker of the evening was our good friend Dr. W. Blum, who gave an interesting illustrated lecture on acid copper solutions.

The usual vote of thanks and appreciation was given to our fellow member for his instructive lecture.

Preceding his remarks Dr. Blum eulogized Dr. E. F. Smith, former provost of the U. of P. and honorary member of this society. He spoke of Dr. Smith and of his great accomplishments in the field of chemistry. Philadelphia Branch deeply regrets the passing of Dr. Smith, who has always been a good friend of the society.

The election of officers for 1928-1929 resulted as follows: President, Geo. Gehling; vice-president, S. T. Lunbeck; secretary-treasurer, P. Uhl; librarian, A. Hirsch. Board of managers: J. E. Underwood, W. P. Scott, H. Snyder. Delegates: G. Gehling, P. Uhl, S. T. Lunbeck. Alternates: H. Seaser, A. Hirsch, N. Verrelle.

PHILIP UHL, Secretary.

PITTSBURGH BRANCH

Our regular meeting held on Saturday evening, May 5th, at 8 p. m. We were somewhat disappointed, as we had Mr. C. H. Proctor, founder of our society, listed as the speaker, but he was unable to come to Pittsburgh for the meeting; he did, however, mail two papers to be presented in his behalf. These papers were held over until our next meeting. Mr. Herman Peter, our president, gave a very good talk upon the deposition of chromium, as done upon large sheets, that are formed into various shapes after plating, several samples were passed around, and the finish was all that could be desired. The application of Mr. Ralph J. Paddock, research chemist, Standard Sanitary Mfg. Co., for associate membership was received and referred to board for action. We had some discussion in reference to changing our night of meeting; this was carried out for some time, every member present having something to say upon the subject. It was decided to try Wednesday night for a change, so Wednesday, June 6th, is the big night, and it is hoped that those desiring the change will be present.

S. E. HEDDEN, Secretary.

TORONTO BRANCH

We had a very good attendance at our regular meeting held on Monday, April 23rd, including a visitor from over the line, Mr. Al. Schafer, of the Chicago Branch, who was given an enthusiastic reception from the boys present, he being the first American visitor this year. Mr. Schaefer gave a brief talk about the Chicago members coming to the convention, and he said he would certainly tell them what a good time was in store for them in Toronto.

Prof. J. T. Burt-Gerrans spoke on the control of acidity in nickel bath.

The questions in question box were thoroughly discussed and a very enjoyable evening was spent. The questions and answers arrived at:

1. Would chlorine in any other form than nickel chloride serve the purpose for which it is intended in a nickel solution? Answer: Nickel chloride in proper quantities would be better than sodium chloride.

2. What is a good formula for a bright nickel bath for a 5 to 10 minute deposit? Answer: 32 oz. single salts; 4 oz. nickel chloride, 4 oz. boracic. P. H. 5.6. Bath operated at a temperature about 100.

3. What is required to make a solution plate bronze which contains sodium cyanide 4¾ oz., zinc ¾ oz., copper 3¾ oz., bicarbonate soda, 3½ oz.? Answer: Use sodium hydroxide instead of bicarbonate.

J. ELLIS, Secretary-Treasurer.

WATERBURY BRANCH

Of late the meetings of Waterbury Branch have been followed with considerable interest by the members interested in the progress of chromium and cadmium plating. While Waterbury ranks high in the quantity and quality of plated work, yet up to six months ago, outside of the company doing the pioneer work in the chromium line, very little of either was done. Now hardly a meeting goes by that the report of a new installation of chromium or cadmium is not received. A lot of experimental work is being done by some, while others are working on a production basis. Most of the corporations holding patents in those finishes are represented in the line up, while others are working with ideas of their own. A comparison of the various methods used is attended by considerable attention, and helps in no small manner to pass an entertaining and educational evening.

W. F. GUILFOILE.

ST. LOUIS BRANCH

Regular meeting of St. Louis Branch, A. E. S., was held Friday, May 11, at Central Y. M. C. A., at which a dinner was served.

Had a good attendance. Keep up the good work.

Officers for the coming year were elected. Wm. Flannery, president; F. N. Weber, vice-president; C. T. McGinley, secretary and treasurer; Al. Riefling, librarian. Board of managers: F. Terrio, R. C. Kells, C. Rieber.

Delegation to convention: H. H. Williams, E. J. Musick, Ed Heil. Alternates: C. T. McGinley, C. Rieber, F. N. Weber.

Next meeting will be installation of the new officers. Hope to see a large crowd to welcome the new officers.

Dr. Ward was with us and gave an interesting talk on Cadium Plating and Colloids used in solution.

Dr. Stout of Washington University, a visitor, gave us a brief talk.

Our Booster Committee on Convention is sure on the job, and you can be sure the St. Louis Branch will be well represented.

Chas. T. McGinley, Secretary.

BOSTON BRANCH

Boston Branch met Friday, the 11th, at 101 Haverhill street, Boston, Mass.

Election of officers was held and all were re-elected for the coming year: President, Harry M. Wright; vice-president, Wm. Simmonetti; secretary-treasurer, Andrew W. Garrett; sergeant-at-arms, Lurgi Gilberti; librarian, Barth. F. Lee. Trustees: Chairman, A. P. Williams, J. Thompson Evans, Fred Greenwood.

Delegates to the convention are: Louis A. Gale, Barth. F. Lee, Harry M. Wright.

Alternates: A. W. Garrett, Wm. Simmonetti and J. Thompson Evans.

A discussion on spotting out was in order for an hour, after which the meeting adjourned at 10 p. m.

A. W. Garrett, Secretary.

BRIDGEPORT BRANCH

Meeting called to order with our president, Mr. Lancaster, presiding. The roll call of officers was read, three officers were absent. The minutes of the last meeting were read and approved. Communications were read. All bills ordered paid.

Our banquet committee gave a report of the banquet, but the final report will not be given until our next meeting. The banquet was very fine and we had a very good educational session in the afternoon.

As Hartford has their banquet May 12 it is expected that a number of our members will attend.

Under good and welfare, chromium was the topic and there was quite a discussion of what and what not solution was the best to use. Also the paper from the Philadelphia Branch on the plating of die cast was read.

President Lancaster has called a special meeting the third Friday in May for the election of officers and delegates to the convention. Secretary instructed to send out cards to that effect. Treasurer's report was read and accepted.

Meeting closed at 10 o'clock.

William Ehrencrona, Secy. and Treas.

CLEVELAND BRANCH

The regular monthly meeting was called to order at 8:15 by Bro. McCormick and after the regular routine was disposed of we elected officers for the coming year with the following results: President, N. E. Zadowski; vice president, E. Steen Thompson; secretary-treasurer, H. J. TerDoest; librarian, Paul R. Stamm; board of managers, W. D. Scott, B. F. McCormick, J. C. Singler.

Then we proceeded to elect delegates to the Toronto convention with the following results: Delegates: H. J. TerDoest, N. E. Zadowski and J. C. Singler; alternates: Wm. D. Scott, E. S. Thompson and L. F. Koehle and I think Cleveland Branch is going to be represented by a better bunch than ever, even its own convention. Mr. E. S. Thompson gave each member present a copy of a method for the determination of chlorine in nickel solutions and he followed it up with a demonstration showing just how it is carried out and showed the end point in the determination so that we all could see and understand it very well. I am sending you a copy herewith.

H. J. TERDOEST.

DETROIT BRANCH

Detroit Branch held its regular meeting and smoker May 9 with a small attendance. During the absence of the president and vice president, Mr. E. V. Allen took the chair.

Mr. Wm. W. McCord was elected to associate membership. The meeting was well spent with an all around table discussion and was adjourned at a late hour. The election of officers was as follows: E. V.

Allen, president Chas. Mascola, vice president; Chas Phillips, secretary; board of managers: E. G. Lovering, Geo. Kutzen, Bernard Lewis. Delegates: E. G. Lovering, John F. K. McCullough.

C. MASCOLA, Secretary.

HARTFORD-CONNECTICUT VALLEY BRANCH

A meeting of this branch A. E. S. was held on April 23, 1928, at the Chamber of Commerce Building, Springfield, Mass.

The meeting was called to order at 8:30 P. M. with President Elwin in the chair. Communications from Secretary Barrows of the Toronto Branch was read.

Two applicants were elected to membership. These were as follows: Mr. D. W. MacDermid, 49 Willard street, Hartford, Conn., as an associate member, and E. F. Fleming of Terryville, Conn., as active.

There being no speaker for the evening, much time was spent on the plans for our first banquet to be held on May 12, at the Hotel Bond, Hartford, Conn.

The meeting was adjourned at 10:15 P. M. by President Elwin; the meeting was attended by only thirteen members.

V. E. GRANT, Secretary.

MILWAUKEE BRANCH

The following officers were elected for the year 1928-1929: President, Pat Sheepau, 459 Twentieth street, Milwaukee; vice-president, F. Mark, 1423 Cherry street, Milwaukee; secretary-treasurer, J. N. Hock, 1229 West Twenty-fourth street, Milwaukee; librarian, R. Goodsell, 575 Van Buren street, Milwaukee; assistant librarian, H. Hurtig, 332 Twenty-sixth street, Milwaukee. Board of managers: Dan Wittig, 375 Third street, Milwaukee; R. Steurnagle, 1508 Concordia avenue, Milwaukee; A. Koehler, 715 Clark street, Milwaukee.

JOHN N. HOCK, Secy.-Treas.,
1229 West Twenty-fourth Street, Milwaukee, Wis.

NEWARK BRANCH

Our April 20 meeting was devoted to the banquet committee report. Mr. George W. Onksen, chairman of the committee, reported that the banquet was the best ever; 471 persons were served at the tables in the large lodge room at the Elks, and was a success in every way. The afternoon session was attended by over 250 men interested in the papers which were read and addresses by Dr. Hiram S. Lukens, Dr. Wm. Blum, Harold Work and G. Byron Hogaboom Jr.

The "Ford" 1928 Sedan, which was given away, was won by Mr. Joseph R. McNamara, 7 Thomas street, Newark, N. J., his donation ticket of 39 cents being the lucky ticket drawn out.

Newark Branch members were invited to the meeting of the American Society of Mechanical Engineers, Plainfield, N. J., section on May 1st, at which time Dr. Wm. Blum will deliver a lecture on "Chromium Plating." Fifteen members signified their intention of attending.

At our May 4th meeting twenty-three members and one visitor were present as President Chas. Bohler sounded the gavel for opening.

One application was read and ordered to take usual course.

Mr. Oliver J. Sizelove and Mr. Philip Sievering were appointed to act as representatives of Newark Branch on the adivsory board at the Essex County Vocational School.

A summary of research from January 15, 1927, to March 1, 1928, on "Crystal Spotting of Sulphide Finishes" by W. P. Barrows, research associate of the American Electroplaters' Society at the U. S. Bureau of Standards, was read by the secretary.

Motion carried that Newark Branch hold an outing in the form of a fishing trip from Friday noon till Sunday afternoon on the second Friday in August. Messrs. Smith and Sizelove were appointed a committee to make arrangements; eighteen members signified their intention to go on the outing.

Mr. Sizelove gave a report of the meeting of the American Electrochemical Society, held at Bridgeport, Saturday, April 28, describing the visits to manufacturing plants.

Mr. Samuel R. Taylor was with us at this meeting and requests his transfer back to Newark Branch from Providence, as he is now located in Newark.

Nomination of officers took place and the delegates to the Toronto convention were as follows: Horace Smith, Oliver J. Sizelove, Philip Sievering. Alternates: A. Calabrese, Royal F. Clark, Alfred Vaughan.

Meeting adjourned 10:30 p. m.

ROYAL F. CLARK, Secretary-Treasurer.

NEW YORK BRANCH

The April meetings which we held in World Building, New York City, on the 3rd and 27th, respectively, were fairly well attended, but why not have a larger gathering at these? What is the outcome of delinquent members? The first thing they know, they need something from the members who attend regularly and may I ask you: Would you feel like asking for help you need from a stranger? Even belonging to branch, if you do not come among us, how do you expect to become acquainted to perhaps the man you need. So as your officer's time is soon to expire, would you know them if somebody asked you if you did? I bring above questions before you for one sole purpose, and that is this: the time is coming when your problems might possibly need more than you can handle. But supposing you can handle them all, it is time for you to come forward and stick to your pledge made at time of initiation to help others who need it.

The following questions were asked at these meetings:

1. What is cause of black nickel flaking? Answer: Perhaps by using 1½ to 2 volts instead of 3 volts you could overcome difficulty.

2. Would a silver solution with a high per cent of cyanide cause tarnishing more quickly than a solution with less?

Several members held a lengthy discussion on this. A paper was read by Mr. Joseph Friska, title of same being, "Black Drip on Brass."

New York will have two papers read at Toronto convention, one by Mr. Joseph Friska and the other by yours truly, with an exhibit of colors of different kinds. Yours truly,

THOS. A. GARDNER,
200 Hackensack St., East Rutherford, N. J.

A. E. S. PAGE

Assembled Expert Scraps With and Without Significance

It is said Canada produces 90% of nickel and 85% of asbestos used in the world. Two good reasons why platers should attend our convention—we use nickel and can line our "tummies" with the other to prevent Prohibition from burning it out.

If the telephone companies use 60 million miles of wire to connect their phones, how many miles do the platers use nowadays?

Estimates indicate that the New Yorkers spend four times as much money for food as for housing. Looks like some of our members in the East could get quite proficient in singing "Tenting Tonight."

Nearly 75 million meals were eaten in American restaurants daily. Let's cut the average down by eating four days at Toronto in June.

A new washable treated fabric, repellent to water and that will not mildew, crack or peel and whose finish is not affected by heat or cold is being marketed.

(What do you say Chronium platers.)

New Occupations for Platers

Start filling stations for cigar lighters and fountain pens.

Sure Cure for Snoring

Make the guilty party gargle with New Skin or Lacquer before retiring.

(To the A. E. S. Bowlers)

"That will never do," the captain cried. His best bowler had lost his stride.
Don't worry, I'll get a double and turkey out.
Those birds won't know what it's all about.
But as hard as he would try each time
The ten pin stood or the nine.
A railroad in the tenth and he was out.
A strike or a spare in the first frame without a doubt would have let us out.
So it goes in a plater's life;
We should all try to win this earthly strife,
For many in old age are paying the cost
For strikes and spares in their youth they lost.
So let's do the Best we can in every frame.
Then in old age we win the game.

TO THE BRANCHES AND MEMBERS THEREOF

Past President Geo. B. Hogaboom wishes at this time to express his thanks for the splendid response to his request. The balance of the story will be told at Toronto.

Try and be there.

APPLICATIONS

	Branch
Wm. A. Horb, 232 East 22nd St., New York City	New York
Geo. M. Roberson, 49 River St., Hoosick Falls, N. Y.	New York
Harold Faint, 1355 Touhy Ave., Chicago, Ill.	Chicago
Lawrence A. Sheridan, 1033 Emma St., Elizabeth, N. J.	Newark
John C. Schmotzer, Cleveland, Ohio	Ohio
Ford S. Holden, Geneva, Ohio	Cleveland
Albert Edward Fryer, 90 Helena Ave., Toronto, Can.	Toronto
John Morshum, 3810 15th Ave., Brooklyn, N. Y.	New York

ELECTIONS

	Branch
Anthony Tyburski, 3107 N. Central Park Ave., Chicago, Ill.	Chicago
John Hamilton, 3011 Addison St., Chicago, Ill.	Chicago
Harold W. Graham, 25 Beatrice St., Toronto, Can.	Toronto
Jos. A. Virgalla, 343 Howard Ave., Bridgeport, Conn.	Bridgeport
Leonard C. Barber, P. O. Box 146, Washington, Md.	Indianapolis
Harry Simons, 2270 Walton Ave., New York	New York
Edward F. Fleming, Terryville, Conn	Hartford, Conn., Valley
W. D. MacDermid, 49 Willard St., Hartford, Conn	Hartford, Conn., Valley
Homer Morton, 25 National Ave., S. W.	Grand Rapids
Frank L. Phillips, 2014 69th St., Kenosha, Wis.	Indianapolis
Judson Raymond Elster, Rawlinson Road, Rochester, N. Y.	Rochester
Eugene Earnest, 920 Butternut St., Syracuse, N. Y.	Rochester
Clarence O. Feild, 1910 East Ave., Rochester, N. Y.	Rochester
John Mathew Sears, 12 Grote St., Buffalo, N. Y.	Rochester
Arthur E. Thurber, care of Oneida Community, Ltd., Sherrell, N. Y.	Rochester
Geo. B. Onions, 1288 West Ave., Buffalo, N. Y.	Rochester
Frederick E. Weiss, care of Hunter Fan & Motor Co., Fulton, N. Y.	Rochester

NOTICE TO BRANCH SECRETARIES

Review for June closes on the 15th so as to get to Members before Convention Day.

Editor.

Mortimer Crumb, care of Hunter Fan & Motor Co., Fulton, N. Y. ..... Rochester
Earnest L. Beightol, 245 Sheperd Ave., Kenmore, N. Y..... Rochester
Clifford R. Wheeler, care of Eclipse Machine Co., Elmira, N. Y. ..... Rochester
J. Wm. Rushmora, 205 Navarre Road, Rochester, N. Y..... Rochester
Geo. Horsly, 1053 Atlantic Ave., Rochester, N. Y..... Rochester
Jack W. Snyder, 84 Aurora St., Rochester, N. Y..... Rochester
Geo. M. Robertson, 49 River St., New York, N. Y..... New York

REINSTATEMENTS

	Branch
Fred Herbst, 1116 Lill Ave., Chicago, Ill.....	Chicago
Edward E. Chace, 39 Maynard St., Attleboro, Mass....	Prov. Attleboro

DEATHS

	Branch
Dr. E. F. Smith, honorary member.....	Philadelphia

TRANSFERS

	Branch
Chas. A. Cooper to.....	New York
H. C. Flanigan from New York Branch to.....	Newark
T. B. Haddow from New York Branch to.....	Newark
C. E. Stiers from New York Branch to.....	Newark

SUSPENSIONS

	Branch
J. C. Boyer.....	New York
R. Dellacova	New York
L. C. Lodalce	New York
H. M. Carter.....	Newark

RESIGNATIONS

	Branch
F. M. Mentz, 152 Hill St., Ilion, N. Y.....	New York
N. E. Dabolt, care of Zapon Lac Co., New York.....	New York

CHICAGO BRANCH

Regular monthly meeting Chicago Branch, held May 12th, at Atlantic Hotel.

Meeting called to order. President Meyers presiding. The attendance was very good, owing to the election of officers.

Mr. E. Lamoureux, chairman of the Booster Committee, made a report on train schedule, and to date has enough to fill two coaches and looking to have more, as Mr. F. J. Hanlon seems to be a very busy man making reservations for those that are a little late, but F. J. said he was willing to be rushed for this cause. So all that can go see F. J. and give him plenty to do. Our next meeting will be another big night, our annual smoker and installation of officers.

After the regular routine of business was completed the next order was that of election of officers, which proved very interesting, as all previous elections have been. The members of Chicago Branch are always ready to try and place the best in office. The results were as follows:

President Robert Meyers was re-elected, that proves that all members believed Bob, as we all call him, did a very good job in the past year and expects to do a great deal more in the coming year.

The honors of vice-president fell to Mr. Gustav Jelinek, an active member of Chicago Branch for a good many years and a man that the members have held very highly and we all know that Gus, as he is known to us, will be of great assitance to President Meyers.

Next office was that of secretary-treasurer, which again fell to Samuel J. C. Trapp. Owing to the fact that it takes more than one term to get accustomed to the office the members re-elected Sam for another year.

The one and most important office of any branch is that of librarian. To bring out the educational features the members cast their vote to our able and trustworthy present librarian, Mr. O. E. Servis. Oscar, as we all know, is always ready to give a helping hand and is ever ready to do anything he is called upon, providing it is for the benefit of the branch.

There was some race in the offices of the board of managers. After the final count, Mr. C. Kocour, F. L. Greenwald and H. Alt were elected.

The delegates were next to be elected, which were F. J. Hanlon, O. E. Servis and Robert Meyers, to represent Chicago Branch at the convention. J. De Graszio, R. Kelley and S. Trapp were elected as alternates.

That concluding the regular order of business our librarian opened the question box, which contained the following questions:

Ques. 1. Can boric acid be added to a nickel solution to the extent of producing an unfavorable deposit.

Ans. 1. No.

Ques. 2. What is the tank material to withstand the action of muriatic acid, and how should it be applied to a steel tank?

Ans. 2. It was suggested that a wood tank lead lined would be best. Several suggestions as to lining were made on steel tanks, one was sheet rubber applied to tank then to coat over with rubberoid paint.

Ques. 3. Can a brush brass finish be produced on small articles mechanically?

Ans. 3. By using white sea sand and pumice stone varying pumice as to flatness desired.

Ques. 4. How can carbonates be removed from a cyanide copper solution?

Ans. 4. Barium cyanide or freeze out.

Ques. 5. What is the best way to produce a gun metal finish on brass?

Ans. 5. Copper carbonate and ammonia.

Ques. 6. Give formula for blue steel finish on brass other than Liver of Sulphur oxidize.

Ans. 6. Copper carbonate and ammonia or Hyposulphite of soda and Sugar of Lead.

Ques. 7. Formula for blue steel finish on steel chemical process.
Ans. 7. Nitrate of soda ten ounces, Manganesse Oxide two ounces.

Mr. Servis then proceeded to read an article on the metric system of measures that was very interesting.

There being no further business the meeting adjourned at 10:30.

S. J. C. TRAPP, Sec'y.

BOSTON

ton Platers' Supply Co., 202 Friend St., Boston. Secretary, A. W. Garrett, 41 King St., Dorchester, Mass.

BRIDGEPORT

Meets first and third Friday of each month at 62 Cannon St., Room 17, Bridgeport, Conn. Secretary, Wm. Ehrencrona, 872 Hancock Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., Atlantic Hotel, 316 S. Clark St. Secretary, S. J. C. Trapp, 1127 N. 7th St., Maywood, Ill.

CINCINNATI

Meets every Thursday, 7:30 p. m., at Vocational Training School, Spring and Liberty St. Secretary, Al. Yeager, 2021 Sherman Ave., Norwood, Ohio.

CLEVELAND

Meets first Saturday of each month at Hotel Winton. H. Terdoest, 380 Pioneer Ave., Akron, Ohio.

HARTFORD-CONN. VALLEY

Meets fourth Monday in each month alternately at 266 Pearl St., Hartford, Conn., and corner Broadway and Worthington St., Springfield. Secretary, Grant Vernon, 43 Putnam St., Bristol, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, Robert G. Suman, 2734 Ridge Road, Dayton, Ohio.

DETROIT

Meets the second Wednesday of each month at the Detroit Testing Laboratory, 554 Bagley Ave., Detroit. Secretary, Chas. Phillips, 4452 Rohns Ave., Detroit, Mich.

GRAND RAPIDS

Meets on the second Saturday of each month at the Vocational High School, 129 Bostwick Ave., N. E. Secretary, Jacob Van Dyke, 1361 Union Ave., N. E., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at Lipps Hall, 321 3d St. J. N. Hock, 1229 W. 24th St., Milwaukee, Wis.

MONTREAL

Meets last Friday of month at Office of Secretary, John H. Feelay, 411 Aylmer St., Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at Franklin Hall, 41 Franklin St., Newark, N. J., at 8 p. m. Secretary-Treasurer, Royal F. Clark, P. O. Box 201, Newark, N. J.

NEW YORK

Meets every second and fourth Fridays of each month in the World Building, Park Row, New York City, N. Y. Secretary, R. J. Liquori, 127 Vanderbilt Ave., Brooklyn, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 44 Washington St., Prov. Engineers Rooms, Providence, R. I. Secretary, J. H. Andrews, 19 Rosedale St., Providence, R. I.

ROCHESTER

Meets every third Friday of each month at the Powers Hotel. Secretary S. P. Gartland, 128 Bryan St., Rochester, N. Y.

ST. LOUIS

Meets first Friday of each month at Barr Branch Library, corner Jefferso and Lafayette Sts. Secretary, C. T. McGinley, 5312 West Florisant Ave., St Louis, Mo.

TOLEDO

Meets first Thursday of each month at Toledo Secor Hotel, corner Cherry an Page Sts. Secretary, W. W. Weiker, 2228 Middlesex Rd., Route 2, Box 635, Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Secretary, Jos. Ellis, 938 Ossington Ave., Toronto 4, Toronto, Canada.

WATERBURY

Meets every second and fourth Thursday of each month. Secretary, Wm. F. Guilfoile, Garden Theatre Bldg., East Main St., Waterbury, Conn.